

IN THE CLAIMS:

Please amend Claims 1-7, and 9-15 as follows.

1. (Currently Amended) An image processor comprising:

means for embedding in image data an a digital watermark comprising an  
irrotationally symmetric pattern arrangement including and position and rotation  
information; information, using an irrotationally symmetric pattern arrangement  
rotation information searching means for performing processing for extracting said  
rotation information from the image data with said digital watermark information  
embedded therein, for a plurality of rotation angles different from one another;  
position information searching means for performing processing for extracting said  
position information from said image data, for a plurality of start-of-extraction positions  
different from one another;  
calculating means for calculating confidence coefficients indicating the accuracy  
with which said position and rotation information is extracted, for each information  
searched by said rotation information searching means and position information searching  
means and extracted as position and rotation information; and  
determining means for determining the position and rotation angle at which said  
digital watermark information is embedded in said image data, based on the confidence  
coefficient calculated by said calculating means.

2. (Currently Amended) The image processor according to claim 1,

wherein said irrotationally symmetric pattern arrangement is a two-dimensional  
matrix comprising constituted by  $m \times n$  elements.

3. (Currently Amended) The image processor according to claim 1,  
wherein said irrotationally symmetric pattern arrangement is a pattern arrangement for which the positive or negative symbols of ~~each~~ corresponding elements are not wholly the same if the patten arrangement is rotated at an arbitrary angle, except ~~(except~~ for angles of 360 degrees multiplied by an integer number ~~number~~).

4. (Currently Amended) An image processor capable of extracting digital watermark information from image data in which said digital watermark information including position and rotation information is embedded, comprising:

rotation information searching means for performing processing for extracting said rotation information from the image data with said digital watermark information embedded therein, for a plurality of rotation angles different from one another;

position information searching means for performing processing for extracting said position information from said image data, for a plurality of start-of-extraction positions different from one another;

calculating means for calculating confidence coefficients indicating the accuracy with which ~~as to whether~~ said position and rotation information is extracted, for each information searched by said rotation information searching means and position information searching means and extracted as position and rotation information; and

determining means for determining the position and rotation angle at which said digital watermark information is embedded in said image data, based on the confidence coefficient calculated by said calculating means.

5. (Currently Amended) The image processor according to claim 4,  
wherein said digital watermark information includes said position information and  
rotation information and usage information, and

wherein said usage information includes the ID of a device or the user ID.

6. (Currently Amended) The image processor according to claim 4,  
wherein said digital watermark information includes said position information and  
rotation information and usage information, and

wherein said usage information includes information for controlling a device.

7. (Currently Amended) The image processor according to claim 4,  
wherein said calculating means calculates confidence coefficients by performing  
computation of said image data with a matrix comprising ~~constituted by~~ mxn coefficients.

8. (Original) The image processor according to claim 7,  
wherein said matrix computation processing is convolution computation.

9. (Currently Amended) The image processor according to claim 4, further  
comprising:

extracting means for extracting the digital watermark information embedded in said  
image data, based on ~~the~~ its position in said image data on the basis of the result of  
determination by said determining means.

10. (Currently Amended) An image processing method comprising:  
an embedding step of embedding in an image data digital watermark information  
comprising an irrotationally symmetric pattern arrangement, and including position and  
rotation information; information, using an irrotationally symmetric pattern arrangement  
a rotation information searching step for performing processing for extracting the  
rotation information from the image data with the digital watermark information embedded  
therein, for a plurality of rotation angles different from one another;  
a position information searching step for performing processing for extracting the  
position information from the image data, for a plurality of start-of-extraction positions  
different from one another;  
a calculating step for calculating confidence coefficients indicating the accuracy  
with which the position and rotation information is extracted, for each information  
searched by said rotation information searching step and said position information  
searching step and extracted as position and rotation information; and  
a determining step for determining the position and rotation angle at which the  
digital watermark information is embedded in the image data, based on the confidence  
coefficient calculated by said calculating step.

11. (Currently Amended) An image processing method of extracting digital watermark information from image data in which ~~said~~ the digital watermark information including position and rotation information is embedded, comprising:

a rotation information searching step of performing processing for extracting ~~said~~ the rotation information from the image data with ~~said~~ the digital watermark information embedded therein, for a plurality of rotation angles different from one another;

a position information searching step of performing processing for extracting ~~said~~ the position information from ~~said~~ the image data, for a plurality of start-of-extraction positions different from one another;

a calculating step of calculating confidence coefficients indicating the accuracy ~~with which as to whether~~ said the position and rotation information is extracted, for each information searched in said rotation information searching step and position information searching step and extracted as position and rotation information; and

a determining step of determining the position and rotation angle at which ~~said~~ the digital watermark information is embedded in ~~said~~ the image data, based on the confidence coefficient calculated in said calculating step.

12. (Currently Amended) A computer program product embodying a program comprising:

program codes for implementing an image processing method of embedding in an image data, digital watermark information comprising an irrotationally symmetric pattern arrangement including and position and rotation information; ~~information, using an irrotationally symmetric pattern arrangement~~

program codes for a rotation information searching step for performing processing for extracting the rotation information from the image data with the digital watermark information embedded therein, for a plurality of rotation angles different from one another;

program codes for a position information searching step for performing processing for extracting the position information from the image data, for a plurality of start-of-extraction positions different from one another;

program codes for a calculating step for calculating confidence coefficients indicating the accuracy with which the position and rotation information is extracted, for each information searched by the rotation information searching step and position information searching step and extracted as position and rotation information; and

program codes for a determining step for determining the position and rotation angle at which the digital watermark information is embedded in the image data, based on the confidence coefficient calculated by said calculating step.

13. (Currently Amended) A computer program product embodying a program for implementing an image processing method of extracting digital watermark information from image data in which said digital watermark information including position and rotation information is embedded,

the program comprising:

program codes for a rotation information searching step of performing processing for extracting ~~said the~~ rotation information from the image data with ~~said the~~ digital watermark information embedded therein, for a plurality of rotation angles different from one another;

program codes for a position information searching step of performing processing for extracting ~~said the~~ position information from ~~said the~~ image data, for a plurality of start-of-extraction positions different from one another;

program codes for a calculating step of calculating confidence coefficients indicating the accuracy with which ~~as to whether said~~ the position and rotation information is extracted, for each information searched in ~~said~~ the rotation information searching step and position information searching step and extracted as position and rotation information; and

program codes for a determining step of determining the position and rotation angle at which ~~said~~ the digital watermark information is embedded in ~~said~~ the image data, based on the confidence coefficient calculated in ~~said~~ the calculating step.

14. (Currently Amended) A computer data signal embodied in a propagating wave comprising: and used

code signals for use in implementing an image processing method of embedding in an image data, digital watermark information comprising an irrotationally symmetric pattern arrangement including and position and rotation information; information, using an irrotationally symmetric pattern arrangement

code signals for use in a rotation information searching step for performing processing for extracting the rotation information from the image data with the digital watermark information embedded therein, for a plurality of rotation angles different from one another;

code signals for use in a position information searching step for performing processing for extracting the position information from the image data, for a plurality of start-of-extraction positions different from one another;

code signals for use in a calculating step for calculating confidence coefficients indicating the accuracy with which the position and rotation information is extracted, for each information searched by the rotation information searching step and the position information searching step and extracted as position and rotation information; and  
code signals for use in a determining step for determining the position and rotation angle at which the digital watermark information is embedded in the image data, based on the confidence coefficient calculated by the calculating step.

15. (Currently Amended) A computer data signal embodied in a propagating wave and used for implementing an image processing method of extracting digital watermark information from image data in which ~~said~~ the digital watermark information including position and rotation information is embedded comprising:

code signals for use in a rotation information searching step of performing processing for extracting ~~said~~ the rotation information from the image data with ~~said~~ the digital watermark information embedded therein, for a plurality of rotation angles different from one another;

code signals for use in a position information searching step of performing processing for extracting ~~said~~ the position information from ~~said~~ the image data, for a plurality of start-of-extraction positions different from one another;

code signals for use in a calculating step of calculating confidence coefficients indicating the accuracy with which ~~as to whether~~ ~~said~~ the position and rotation information is extracted, for each information searched in ~~said~~ the rotation information searching step



and the position information searching step and extracted as position and rotation information; and

code signals for use in a determining step of determining the position and rotation angle at which ~~said~~ the digital watermark information is embedded in ~~said~~ the image data, based on the confidence coefficient calculated in ~~said~~ the calculating step.